

Study Guide for Cells Assessment

1. What characteristics do all living things share?

Here are the ones you will be responsible for knowing. Check out the hyperlinks below for more information about these characteristics. Some resources list more and others less. Letter (a-f) below will be the only ones you will be expected to know.

(Text: Prentice Hall, *From Bacteria to Plants*, Chapter 1, Section 1, pages 4-15 & 34-37)

- a. made of one or more cells (unicellular or multi-cellular)
- b. use energy for growth and repair
- c. responds to surroundings (stimulus-response)
- d. grows (becomes larger) and develops (becomes more complex)
- e. reproduces (produce offspring with similar characteristics)
- f. maintain a balanced internal environment of temperature, salinity, chemistry, waste, etc. (homeostasis)

(Text: Prentice Hall, *Human Biology & Health*, Chapter 1, Section 1, pages 10-11 & 38-41)

Further reading on Characteristics of life:

<http://www.qacps.k12.md.us/cms/sci/life/Characteristics.htm>

<http://library.thinkquest.org/C003763/pdf/origin06.pdf>

2. What are the three statements of Cell Theory?

Please see page 10 in book. For our purposes, we will stick to the original three statements of Cell Theory.

- a. All living things are composed of cells (Hooke, Leeuwenhoek, Schleiden, Schwann, Virchow)
- b. Cells are the basic units of structure and function in living things.
- c. All cells are produced from other cells (Redi's, Pasteur's experiments re spontaneous generation)

Further reading on the development of Cell Theory:

http://en.wikipedia.org/wiki/Cell_theory

http://www.biology.arizona.edu/cell_bio/tutorials/cells/cells3.html

This article about the history of Cell theory is for more advanced readers, have your dictionary at the ready to decipher some new vocabulary:

http://www.nature.com/ncb/journal/v1/n1/full/ncb0599_E13.html

3. How was Spontaneous Generation disproved?

Further reading on Spontaneous Generation:

Here is a great link to a book posted by google. On pages 139-143 is some great information about Spontaneous Generation:

http://books.google.com/books?id=hHpFMh902XEC&pg=PA141&lpg=PA141&dq=%22the+death+of+spontaneous+generation%22&source=web&ots=7YG09ZMJ0X&sig=Ab4hFPDGJjmBJSF_hOzfCApKyY8&hl=en&sa=X&oi=book_result&resnum=7&ct=result#PPA139,M1

Another great link for a short read on

SG: http://www.accessexcellence.org/RC/AB/BC/Spontaneous_Generation.php

4. Be able to identify organelles by their structure and function. p. 16-22 in book, also see organelle want ads online.

5. How are animal and plant cells different?

Three basic differences:

1. Plant cells have a cell wall, animal cells do not.
2. Plant cells have chloroplasts (making them able to make their own food) animals cells do not.
3. Plant cells have a large central water vacuole, animal cells have several much smaller vacuoles for storage.

See your book for more information.

6. What three reasons do cells reproduce (mitosis)?

Page 55-62 in book

- Growth of the organism
- Replace old or damaged cells
- To repair and heal the organism if hurt.

See the science web resources section on Cell Division for more in depth information on this topic.

7. Be able to sequence (put in order from beginning to end) the stages of Mitosis if given pictures of cells in different stages.

See your notes for this, or section of my web resources on Cell Division.